

Optimum Entrance Rate to Mechanical Assembly Line of RIO Vehicle in SAIPA Corporation

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Abstract

The entrance rate of vehicle bodies into assembly lines to complete the assembly process is so important for managing and increasing the daily production. In this paper, using discrete simulation technique and a simulation methodology, which is designed by simulation technical committee of Michigan University, we modeled and simulated the mechanical assembly line of RIO vehicle in SAIPA Corporation to find the optimum entrance rate, such that the daily production and total productivity are increased, besides the entrance rate and cycle time are shortened, reasonable and feasible as simultaneously. The entrance rate of RIO vehicle bodies into mechanical assembly line is one vehicle per 6 minutes. The daily output is in arrival [53, 69]. After various running of simulated system of mechanical assembly line of RIO, we found its optimum status such that the outputs and productivity are increased. In this regard, if the entrance rate is reduced as much as 2.2 minutes, the daily output of mechanical assembly line will be in arrival [65, 77], where, the lower bound of the assembly line production will increase as much as 12 units and the upper bound of daily output rate will increase as much as 8 units or vehicle bodies.

Keywords: Simulation, Discrete Modeling, Continuous Modeling, Combined Modeling, System Logic, Steady State, Model Validity, Simulation Methodology.

Biography:

Abolfazl Gharaei is a Ph.D. candidate in Industrial Engineering at Kharazmi University in Iran. In addition, he is a Ph.D. visiting student at University of Toronto. His research interests concentrate on inventory modeling and optimization that represent broad spectrum of Exact, Heuristic and Meta-heuristic algorithms. In addition, determining optimum Lot-sizing, Replenishment, Batch-sizing, Lot-streaming in supply chains, inventory model, and integrated inventory systems such as EPQ or EOQ models in the form of MINLP, NLP, and MIP models constitute an important part of his research interests. Furthermore, he has published more than 10 ISI papers in his main interest fields and four books in the field of computer application in industrial engineering. Moreover, he is visiting Professor and he has taught in the Department of Industrial Engineering at Payame Noor University since 2010.